



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety Administration**

December 2, 2015

East Building, PHH-30
1200 New Jersey Avenue S.E.
Washington, D.C. 20590

DOT-SP 16578

EXPIRATION DATE: November 30, 2017

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Schlumberger Technology Corporation
Sugar Land, TX
2. PURPOSE AND LIMITATIONS:
 - a. This special permit authorizes the manufacture, mark, sale and use of non-DOT specification cylinders without pressure relief devices for the transportation in commerce of certain hazardous materials. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein. The most recent revision supersedes all previous revisions.
 - b. The safety analyses performed in development of this special permit only considered the hazards and risks associated with transportation in commerce. The safety analyses did not consider the hazards and risks associated with consumer use, use as a component of a transport vehicle or other device, or other uses not associated with transportation in commerce.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 173.301(f) in that a cylinder filled with a gas and offered for transportation must be equipped with one or more pressure relief devices and §§ 173.302a and 173.304a in that non-DOT specification cylinders are not authorized, except as specified herein.

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5. BASIS: This special permit is based on the application of Schlumberger Technology Corporation dated September 21, 2015, submitted in accordance with § 107.105 and the public proceeding thereon.
6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Material Description			
Proper Shipping Name	Hazard Class/Division	Identification Number	Packing Group
Compressed gas, toxic, flammable, n.o.s. <i>Inhalation Hazard Zone B</i>	2.3	UN1953	N/A
Hydrocarbon gas mixture, compressed, n.o.s.	2.1	UN1964	N/A
Hydrocarbon gas mixture, liquefied, n.o.s.	2.1	UN1965	N/A
Hydrogen sulfide	2.3	UN1053	N/A
Liquefied gas, flammable, n.o.s.	2.1	UN3161	N/A
Nitrogen, compressed	2.2	UN1066	N/A
Petroleum gases, liquefied or Liquefied petroleum gas	2.1	UN1075	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Prescribed packaging is a non-DOT specification oil well sampling cylinder, threaded at one end, with a design pressure of 18,000 psig. Each cylinder must comply with the design calculations, drawings, material specifications, and engineering specifications submitted with Schlumberger Technology Corporation's application for a special permit on file with the Office of Hazardous Materials Safety Approvals and Permits Division (OHMSAPD). In addition, each cylinder must conform to the specification DOT 3A (§§ 178.35 and 178.36), except as follows:

§ 178.35(e) *Safety devices.* No pressure relief device is required on the completed cylinder. The cylinder must be equipped with elastomeric seals, which relieve

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pressure when subjected to a pool fire. The start to discharge pressure must not exceed the hydrostatic test pressure.

§ 178.35(f) *Marking*. Applies except that cylinders must be marked "DOT-E 16578" in lieu of DOT specification marking.

§ 178.36(b) *Steel*. The authorized materials of construction are Hastelloy C-22HS, per Schlumberger Material Specification 101150964, and Inconel 718, per Schlumberger Material Specification 100237403. The materials wetted with reservoir fluids must meet the requirements of the National Association of Corrosion Engineers Specification MR-0175 for suitability in hydrogen sulfide (H₂S) service.

§ 178.36(f) *Wall thickness*. Minimum wall thickness must not be less than 0.1965 inch.

§ 178.36(g) *Heat treatment*. Tubular components of Hastelloy C-22HS need not be heat treated. Block components of Inconel 718 may undergo Salt Bath Nitriding per Schlumberger Coating Specification 101257837. The heat treatment of the purchased stock material must conform to the Schlumberger material specifications.

§ 178.36(h) *Openings in cylinders and connections for those openings*. Openings and connections must conform as shown to Schlumberger drawings on file with the OHMSAPD.

§ 178.36(j) *Flattening Test*. A flattening test is not required.

§ 178.36(l) *Acceptable results for physical tests*.

Hastelloy C-22HS Bar Stock

Minimum Tensile strength:	185,000 psi
Minimum Yield strength:	180,000 psi
Minimum Elongation on 4D:	14%
Minimum Reduction of Area:	35%
Maximum Rockwell C Hardness:	43 HRC

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Minimum Tensile strength: 150,000 psi
Minimum Yield strength: 120,000 psi
Minimum Elongation on 4D: 20%
Minimum Reduction of Area: 35%
Maximum Rockwell C Hardness: 40 HRC
Yield strength must be determined by the "offset"
method as prescribed in ASTM Standard E8.

§ 178.36(m) *Leakage test.* The cylinder is neither spun nor permanently plugged, so no leakage test is required.

§ 178.36(n) *Rejected cylinders.* Rejected cylinders may not be heat treated.

b. TESTING - Each cylinder must be reinspected and hydrostatically retested in accordance with §§ 180.205 and 180.209 as prescribed for specification DOT 3A cylinders. Reheat treatment or repair of rejected cylinders is not permitted.

c. OPERATIONAL CONTROLS -

(1) Transportation of Division 2.1 (Flammable gases) and 2.3 (Poisonous gases) hazardous materials are not authorized aboard cargo vessel or cargo aircraft unless specifically authorized in the Hazardous Materials Table (§ 172.101).

(2) Cylinders must be transported in a dedicated transit case or installed in a Reservoir Sampling Tool as described in the application for a special permit.

8. SPECIAL PROVISIONS:

a. In accordance with the provisions of Paragraph (b) of § 173.22a, persons may use the packaging authorized by this special permit for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this special permit.

b. A person who is not a holder of this special permit, but receives a package covered by this special permit, may reoffer it for transportation provided no modification or

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change is made to the package and it is offered for transportation in conformance with this special permit and the HMR.

c. A current copy of this special permit must be maintained at each facility where the package is offered or reoffered for transportation.

d. Each packaging manufactured under the authority of this special permit must be either (1) marked with the name of the manufacturer and location (city and state) of the facility at which it is manufactured or (2) marked with a registration symbol designated by the Office of Hazardous Materials Special Permits and Approvals for a specific manufacturing facility.

e. A current copy of this special permit must be maintained at each facility where the packaging is manufactured under this special permit. It must be made available to a DOT representative upon request.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, and cargo aircraft only.
10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each cargo vessel, aircraft or motor vehicle used to transport packages covered by this special permit. The shipper must furnish a copy of this special permit to the air carrier before or at the time the shipment is tendered.
11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
 - o All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
 - o Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
 - o Registration required by § 107.601 et seq., when applicable.

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Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when this special permit has expired or is otherwise no longer in effect.

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)—"The Hazardous Materials Safety and Security Reauthorization Act of 2005" (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term "exemption" to "special permit" and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 Immediate notice of certain hazardous materials incidents, and 171.16 Detailed hazardous materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:



for Dr. Magdy El-Sibaie
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Material Safety Administration, U.S. Department of Transportation, East Building PHH-30, 1200 New Jersey Avenue, Southeast, Washington, D.C. 20590.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at
http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm

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